

Day- 2

Java programming

Course code – csa0998

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1 . Avengers marks 15 students .

Code:-

```
import java.io.*;
```

```
class GFG {
```

```
    public static void main(String[] args)
```

```
    {
```

```
        int N = 15, total_marks = 0;
```

```
        float percentage;
```

```
        int marks[] = {
```

```
55,55,55,77,88,99,55,33,15,78,89, 75, 82, 60, 95 };
```

```
        for (int i = 0; i < N; i++) {
```

```
            total_marks += marks[i];
```

```

    }
    System.out.println("Total Marks : " +
total_marks);

    percentage = (total_marks / (float)N);
    System.out.println(
        "Total Percentage : " + percentage +
"%");
    }
}

```

Output:-

Total Marks : 1011

Total Percentage : 67.4%

2 . Matrix multiplication .

Code:-

```

public class MatrixMultiplicationExample{
    public static void main(String args[]){
        int a[][]={{1,1,1},{2,2,2},{3,3,3}};
        int b[][]={{1,1,1},{2,2,2},{3,3,3}};
        int c[][]=new int[3][3];
    }
}

```

```

for(int i=0;i<3;i++){
for(int j=0;j<3;j++){
c[i][j]=0;
for(int k=0;k<3;k++)
{
c[i][j]+=a[i][k]*b[k][j];
}
System.out.print(c[i][j]+" ");
}
System.out.println();
}
}}

```

Output:-

6 6 6

12 12 12

18 18 18

3 . Matrix addition .

Code:-

```

public class MatrixAdditionExample{

```

```
public static void main(String args[]){  
    int a[][]={{1,3,4},{2,4,3},{3,4,5}};  
    int b[][]={{1,3,4},{2,4,3},{1,2,4}};  
    int c[][]=new int[3][3];  
    for(int i=0;i<3;i++){  
        for(int j=0;j<3;j++){  
            c[i][j]=a[i][j]+b[i][j];  
            System.out.print(c[i][j]+" ");  
        }  
        System.out.println();  
    }  
}
```

Output:-

2 6 8

4 8 6

4 6 9

4 . Matrix subtraction .

Code:-

```
public class Sub_Matrix
```

```
{  
    public static void main(String[] args) {  
        int rows, cols;  
        int a[][] = {  
            {4, 5, 6},  
            {3, 4, 1},  
            {1, 2, 3}  
        };  
        int b[][] = {  
            {2, 0, 3},  
            {2, 3, 1},  
            {1, 1, 1}  
        };  
        rows = a.length;  
        cols = a[0].length;  
        int diff[][] = new int[rows][cols];  
        for(int i = 0; i < rows; i++){  
            for(int j = 0; j < cols; j++){  
                diff[i][j] = a[i][j] - b[i][j];  
            }  
        }  
    }  
}
```

```
    }  
}
```

```
    System.out.println("Subtraction of two  
matrices: ");
```

```
    for(int i = 0; i < rows; i++){  
        for(int j = 0; j < cols; j++){  
            System.out.print(diff[i][j] + " ");  
        }  
    }
```

```
    System.out.println();
```

```
    }
```

```
}
```

```
}
```

Output:-

Subtraction of two matrices: 2 5 3

1 1 0

0 1 2

5 . Simple interest using oops .

Code:-

```
public class Main {
```

```
public static void main(String[] args) {  
  
    System.out.print("Principal = 9000: ");  
    double principal = 9000;  
  
    System.out.print("rate of interest = 10 : ");  
    double rate = 10;  
  
    System.out.print("number of years = 5 : ");  
    int years = 5;  
  
    double simpleInterest = (principal * rate * years)  
/ 100;  
    System.out.println("Simple Interest: " +  
simpleInterest);  
}  
}
```

Output:-

Principal = 9000: rate of interest = 10 : number of
years = 5 : Simple Interest: 4500.0

6 . Area of rectangle using oops concepts .

Code:-

```
import java.util.*;

class Rectangle {
    int length, width;

    Rectangle(int length, int width) {
        this.length = length;
        this.width = width;
    }

    public void area() {
        int areaOfRectangle;
        areaOfRectangle = this.length * this.width;
        System.out.println("Area of rectangle with
the given input is : " + areaOfRectangle);
    }

    public void perimeter() {
        int perimeterOfRectangle;
        perimeterOfRectangle = 2 * (this.length +
this.width);
    }
}
```



```
        System.out.println("Perimeter of rectangle
with the given input is : " +
perimeterOfRectangle);
    }
}

public class Main {
    public static void main(String args[]) {
        Rectangle rect_obj = new Rectangle(10,5);
        System.out.println("Length = " +
rect_obj.length);
        System.out.println("Width = " +
rect_obj.width);
        rect_obj.area();
        rect_obj.perimeter();
    }
}
```

Output:-

Length = 10

Width = 5

Area of rectangle with the given input is : 50

Perimeter of rectangle with the given input is : 30

7 . Area of circle using oops .

Code:-

```
import java.util.Scanner;

public class AreaOfCircle {

    public static void main(String args[]){

        int radius;

        double area;

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter the radius of the
circle ::");

        radius = sc.nextInt();

        area = (radius*radius)*Math.PI;

        System.out.println("Area of the circle is
::"+area);

    }

}
```

Output:-

Enter the radius of the circle ::

5

Area of the circle is ::78.53981633974483

8 . Area of rectangle using constructors .

Code:-

```
public class Student {  
    int id;  
    String name;  
  
    Student(){  
        System.out.println("this a default constructor");  
    }  
  
    Student(int i, String n){  
        id = i;  
        name = n;  
    }  
  
    public static void main(String[] args) {  
        Student s = new Student();  
        System.out.println("\nDefault Constructor values:  
        \n");  
    }  
}
```

```
System.out.println("Student Id : "+s.id +
"\nStudent Name : "+s.name);

System.out.println("\nParameterized Constructor
values: \n");

Student student = new Student(10, "David");

System.out.println("Student Id : "+student.id +
"\nStudent Name : "+student.name);

}

}
```

Output:-

this a default constructor

Default Constructor values:

Student Id : 0

Student Name : null

Parameterized Constructor values:

Student Id : 10

Student Name : David

9 . Area of box in java using class and object .

Code:-

```
class Box {  
    double length;  
    double width;  
    double height;  
  
    // Constructor to initialize the dimensions of the  
    box  
    public Box(double length, double width, double  
height) {  
        this.length = length;  
        this.width = width;  
        this.height = height;  
    }  
  
    // Method to calculate the area of the box  
    public double calculateArea() {  
        // Calculate the surface area of the box  
        double area = 2 * ((length * width) + (width *  
height) + (height * length));  
    }  
}
```

```
        return area;
    }
}
```

```
public class Main {
    public static void main(String[] args) {
        // Create an object of the Box class
        Box myBox = new Box(5.0, 4.0, 3.0);

        // Calculate the area of the box using the
        calculateArea() method
        double area = myBox.calculateArea();

        // Print the result
        System.out.println("The surface area of the
        box is: " + area);
    }
}
```

Output:-

The surface area of the box is: 94.0